

International Summit on Women in STEM

Visualizing the Future: New Skylines

A two day International Summit on Women in STEM ‘Visualizing the Future: New Skylines’ was organized by the Department of Biotechnology (DBT), Ministry of Science and Technology, Government of India from January 23-24, 2020 Indian Habitat Centre, New Delhi. The international summit secured participation from wide range of stakeholders, subject matter experts, scientists, researchers, students, policy makers, from India and other countries including USA, UK, Australia, South Africa, Sri Lanka, Maldives, Nepal.

The summit was organized to discuss and deliberate how to increase participation of women in Science, Technology, Engineering and Mathematics (STEM), and to contribute to the economic growth of the country. The summit proved a platform to share knowledge and best practices for promoting and supporting participation and progression of women in STEM education and careers.



Dr. Renu Swarup, Secretary DBT, Govt. of India addressing International Summit on Women in STEM

The opening session was chaired by Dr. Renu Swarup, Secretary DBT, Govt. of India, Prof. Ashutosh Sharma, Secretary, DBT, Dr. Meenaksi Munshi, Advisor, DBT, Govt. of India, Dr. Dinkar M. Salunke, Director, ICGEB, New Delhi, Dr. Chandrima Shaha, President of the Indian National Science Academy (INSA), Her Excellency Ms. Harinder Sidhu, Australian High

Commissioner to India, Dr Manju Sharma, Former Secretary, DBT, and Dr. Suraksha S. Diwan, Scientist E, DBT, Govt. of India.

Dr Meenaksi Munshi welcomed all the guests at summit and highlighted the objective of summit that aims at promotion of women participation in STEM.

Dr. Dinkar M. Salunke congratulated all women attending summit, and said that it is only after huge struggle women had researched many key positions in STEM. He also mentioned that although women participation in STEM has increased considerably over past few years, however, a lot need to be done despite government persistent efforts. Data shows that girls outnumber boys in schools, UG and PG levels studies, but unfortunately only 20% among them enter into STEM domains indicating that women talent is missed somewhere in the journey, and therefore, women participation in STEM has to increase, he said. He expressed his satisfaction over the huge gathering of women leaders who owe the responsibility of mentoring and inspiring young women who want to pursue their careers in STEM.



Prof. Ashutosh Sharma, Secretary, DBT, Govt. of India addressing International Summit on Women in STEM

Prof. Ashutosh Sharma addressed the august gathering and said that at DBT deeply committed minds are contributing actively to bring women STEM. He stressed upon conducting similar gatherings in future to promote women in STEM. In past, the scientific domains were male dominated.

Prof. Sharma explained evolution of industries was such that it did not provided enough space and opportunities to women. He said, that by the beginning of the 19th century, though, manufacturing has began to change dramatically with the introduction of Industry 0.0; however,

it was muscle oriented, feudal in nature and had no space for women. Industry 1.0 came with rise of water- and steam-powered machines such as steam engine, but again it was central in nature, driven by colonial mindset, and offered no roles to women. Similarly, with Industry 2.0 era electricity became the primary source of power, and technology became pervasive. Still women participation was very rare. During Industry 1.3, invention and manufacture of electronic devices became common and the fully automated individual machines began to supplement or replace operators. It brought very evident socio-economic changes, and all sections of society including farmer, and rural population began to use digital technology.

The Industry 4.0 connects the internet of things (IOT) with manufacturing techniques to enable systems to share information, analyze it and use it to guide intelligent actions. It also adds up cutting-edge technologies, robotics, and artificial intelligence (AI), and advanced materials, could augment the manufacturing ecosystem. It was driven by creation, but still the ownership was centralized. The information generated leads to knowledge production which in turn promote innovation. It is high time to bring inclusion and diversity (both geographical and age relate) in the industry.

Both medical and life sciences have seen tremendous women participation, however, IIT's and tech colleges are known to have just 10% of women participation in India, and remain majorly underrepresented by women who happen to be 50% of our population. According to Prof. Shrama, women participation in underrepresented areas needs intensity, commitment and skills development.

He mentioned schemes like WOS-A, WOS-B, and WOS-C has promoted women to return to scientific careers and training in intellectual property rights domains. He also spoke about Vigyan Joyti which aims at encouraging and training 50 thousand bright girl students per year from 2020 onwards. It also aims at generating confidence in them and shall support them financially as well as train them to participate in STEM. It was also highlighted that DBT is going to introduce ranking system in all institutions on basis of gender equality and equity, so that such institutions shall measure their growth and ensure gender neutrality.

Dr. Chandrima Shaha during his special address pointed out that women has remained underrepresented even in gender neutral countries, thus, relentless efforts are needed to bridge the gap. He emphasized that experienced women in STEM should mentor and inspire young females who need to adapt to a technology driven ecosystems. To address the new challenges,

young women needs to come out and accept the challenging roles in male dominated establishments. Besides, 'it also becomes obligatory for all Indian science academies to reinvent them to accommodate and address the changing socio economic setups', he said.

Dr. Shaha laid stress upon identification of key problems that deter women from entering into STEM. According to him, the major solution to address the problem is education and bridging the gender gap. Further, women who want to enter STEM needs to reinvent and reverse engineer themselves to fit into the changing ecosystem. He expressed his strong belief that nobody can stop talented and determined minds from entering the fields of their choice and science enterprise will always accept them without any change in their female characteristics.

Dr Renu Swarup showed her optimism of having a very bright future with more and more women in science. She quoted Kofi Annan, the seventh secretary general of the United Nations, that, 'Gender equality is critical to the development and peace of every nation, and there is no tool for development more effective than the empowerment of women. According to her, schemes like *Biocare* have increased the percentage of women in STEM to 30-35%, and BIRAC has been instrumental in facilitating women participation in STEM. She said decisions are made purely on basis of merit and not on design of the scheme.

She invited participants from EU, UK, and South Asian countries to develop a consensus, and creative ideas for establishing an international scheme for women scientist exchange program to ensure their participation in STEM. Government of India is committed in supporting such initiatives, she said.

She proclaimed that in year 2020, the DBT India will invite 5-10 scientists from ICGEB member counties to work in India. Women scientists need not any reservation but opportunities and environment. Dr. Swarup added that international summit is meant for young women, and it stands for identification of their strength, talent and dedication. She highlighted the change in mindset among entrepreneurs, and how Dr. Kiran Mazumdar Shaw has set an example for aspiring biotech entrepreneurs, and how successfully she has taken Bicon Limited to a new stature of the success. Women constitute 50% of India's population, thus, harnessing the economic potential of women is of utmost importance. Women have immense potential, and the only thing is to put in place a right ecosystem and policies. She concluded with quote of Jamie Farsnel that '*Don't let being a woman hold you back from the leader that you're destined to be*'.

Australian High Commissioner to India, Her Excellency Ms. Harinder Sidhu, also expressed her gratitude and said she feels honored to learn from Indian women in STEM whose contribution has been acknowledged by world. She said that the Australian government has conferred its highest civilian honour, the Order of Australia Honour, on Biocon founder Dr. Kiran Mazumdar Shaw for her immense contribution to S&T and humanity at large. She is only 4th India to receive the prestigious honour. She emphasized on the importance of harnessing the strength and potential of 50% women population. Companies with gender equality are more profitable, and progressive, she added.

Over more than a decade, Australia-India Strategic Research Fund (AISRF) has been at the core of R&D collaborations between the two countries. She also laid emphasis that even Australia is not also doing so well when it comes to engaging women in STEM. She mentioned that women work at low profile jobs and are paid less when compared to male counterparts. The main reason absence of women in STEM is same as bias, stereotyping, lack of flexible work environment, lack of role models, and absence of right policies. She said Australia is all set to generate 160 thousand Artificial Intelligence (AI) workers by 20230, and their government is putting lot of efforts to urge women to pursue STEM as their career and work with huge passion and grit. She said that government can galvanize the ecosystem, and provides opportunities to women in government organizations.

Dr Manju Sharma also highlighted importance women in STEM, and stressed upon the need of promoting women in frontier sciences. Addressing the gender parity is a must, and it becomes essential to address the needs women working in agricultural fields including their health. According to her, technology has to reach to women working in fields, and rural population in general. She highlighted the importance of inclusiveness, commitment, gender parity, decision making, policies and right environment for making women to participate in STEM. She raised few questions to the women working at key positions, and asked, are we making enough efforts to make more women leaders? And how much mentorship do we provide to young women? She said that networking and good management practices are must to bring more and more women in STEM.

Dr. Bilqeesa Bhat
Project Scientist,

bhat.bilqeesa3000@gmail.com